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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/045,391 | 11/09/2001 | Sheng-Shing Li | PP/1-22278/P5/CGC 2069 | 2361 |

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Patent Department
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| EXAMINER | |
|---|---|
| BOYD, JENNIFER A | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1771 | |

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/045,391 | LI ET AL. | |
| | Examiner | Art Unit | |
| | Jennifer A. Boyd | 1771 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *11 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1, 2, 7 – 12, 17 – 19 and 22 – 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, 7 – 12, 17 – 19 and 22 – 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/14/05,3/18/05*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

1. The Applicant's Amendments and Accompanying Remarks, filed May 11, 2005, have been entered and have been carefully considered. Claim 1 is amended and claims 1, 2, 7 – 12, 17 – 19 and 22 – 25 are pending. All previously set forth rejections have been maintained but have been revised below for clarity. The invention as currently claimed is unpatentable for reasons herein below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### *Claim Rejections - 35 USC § 103*

3. Claims 1 – 2, 7 – 12, 17 – 19 and 22 – 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai et al. (US 6,218,009) in view of Mor et al. (US 6,146,757).

Tsai is directed to hydrophilic binder fibers (Title) suitable for applications such as diapers, sanitary napkins and health care products (column 1, lines 20 – 35).

As to claims 1 and 22, Tsai teaches a fiber with a polyolefin core and a highly wettable aliphatic polyester blend sheath material. Tsai teaches that the polyester blend of the sheath further comprises a wetting agent (Abstract). Tsai teaches that the wetting agent contains $(CH_2)_n$, where n is 4 or greater (column 11, lines 13 – 15). It should be noted that $(CH_2)_n$, represents the hydrophobic hydrocarbon component $R_1$. Applicant requires that the $R_1$ component is a straight

or branched chain alkyl of 23 – 40 carbon atoms; it is the position of the Examiner that Tsai's disclosure of n is 4 or greater overlaps and thus teaches Applicant's limitation.

As to claims 7 - 8, Tsai teaches that the wetting agent is present in the blend in an amount that is greater than 0 to about 25 weight percent (column 11, lines 60 – 68).

As to claim 9, Tsai teaches a fiber with a polyolefin core and a highly wettable aliphatic polyester blend sheath material (Abstract); a sheath-core fiber is known in the art to be a bi-component fiber.

As to claims 10 and 12, Tsai teaches that the binder fiber of the invention can be incorporated into spunbonded or meltblown non-woven fabrics (column 16, lines 55 – 68).

As to claim 17, Tsai teaches that the fibers are suitable for applications such as diapers, sanitary napkins and health care products (column 1, lines 20 – 35).

Tsai fails to teach that the melt blend of wetting agent and polymer comprises a polyolefin as required claims 1, 9 – 10 and 12, and, specifically, the polyolefin is a polyethylene or polypropylene as required by claims 2 and 11. Tsai fails to teach that the melt blend composition additionally comprises an ethoxylated aliphatic alcohol that is not of formula Ia as required by claims 18 and 23 and specifically that the additional component comprises 2 mole ethoxylated stearyl alcohol as required by claims 19 and 24.

Mor teaches a wettable fiber or filament having a thermoplastic polymer, a first wetting agent and a second wetting agent (column 7, lines 65 – 67 and column 8, lines 1 – 5) useful in products such as diaper inner liners, battery cell separators and other applications (column 13,

lines 1 – 5). Mor teaches that the preferred thermoplastic polymer is a polyolefin (column 9, lines 65 – 67) and that the polyolefin is preferably polyethylene or polypropylene (column 10, lines 1 – 5). Mor teaches that the surface active agent, or wetting agent, is introduced into the bulk polymer resin rather than applying it to the surface of the polymer (column 14, lines 25 – 35). Mor teaches that in applications such as inner liners for diapers that material such as polyester and cellulose is commonly employed. Mor notes that polyester liners wet fairly readily and wick effectively but polyester webs have a coarse feeling. Polypropylene provides a much softer web than polyester but it wets poorly (column 13, lines 45 – 55). Therefore, the modified web of Mor with integrated wetting agent would provide a soft feel and good wetting properties. Mor teaches that the second wetting agent can comprise an alkoxylated fatty alcohol (column 6, lines 30 – 35). Mor teaches that in a preferred embodiment that the alkoxylated fatty alcohol is a combination of an ethoxylated cetyl alcohol and an ethoxylated stearyl alcohol and preferably contains from about 2 to 10 moles of ethylene oxide condensed thereon (column 6, lines 40 – 45). Mor teaches that a blend of wetting agents allows a broad range of wetting characteristics. The blend allows control over the degree of wetting and permanence which may be obtained by varying concentrations and the ratio of the first and second wetting agents (column 14, lines 20 – 25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use polypropylene as the sheath polymer as suggested by Mor rather than polyester in the bicomponent fiber of Tsai motivated by the desire to create a web which is very soft and has good wetting properties.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a second wetting agent, such as an ethoxylated stearyl alcohol, as suggested by Mor in the blend of Tsai motivated by the desire to control the degree and permanence of the wetting properties of the fibers.

As to claims 1 and 22, Tsai in view of Mor discloses the claimed invention except for that n or Applicant's "x" parameter is between 2 – 10 as required by claim 1 or is 2 or 3 as required by claim 22. It should be noted that the number of repeating ethylene oxide groups is a result effective variable. For example, the number of ethylene oxide repeating groups relates to the bulk of the polymer and the ease of integration into the polymer blend. It should be noted that Tsai discusses the concept of a HLB ratio, which is the ratio of the weight average molecular weight of the hydrophilic portion divided by the total weight average molecular weight of the material multiplied by 20. The HLB ratio is directly related to the amount of repeating carbons of the hydrophilic portion or Applicant's "x" parameter. Although Tsai teaches that the desired range of HLB is between 10 – 40, Tsai does provide motivation to optimize the HLB (or Applicant's "x" parameter). Tsai teaches that if the HLB is too low, the wetting agent will generally not provide the desired improvement in hydrophilicity. Conversely, if the HLB ratio value is too high, the agent will generally not blend into the polymer blend. It would have been necessary and obvious to optimize the amount of ethylene oxide groups to 2 - 10 or to 2 or 3 in order to successfully practice the invention of Tsai in view of Mor and since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would

have been motivated to create a blend with a wetting agent having an optimal amount of ethylene oxide groups to create a fiber which exhibits the desired properties while being easily integrated into the polymer blend.

4. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai et al. (US 6,218,009) in view of Mor et al. (US 6,146,757) as applied above, and further in view of Gessner et al. (US 5,733,822).

Tsai teaches that the fibers can further comprise a stabilizer (column 12, lines 15 – 20), but fails to teach that the stabilizer is selected from the group consisting of hindered amine stabilizers, phenolic antioxidants, phosphates or phosphonites, hydroxylamines, benzofuranones and hydroxyphenylbenzotriazole, hydroxybenzophenone or tris-aryl-s-triazine UV absorbers.

Gessner is directed to a composite nonwoven fabric (Title) useful for a variety of applications such as diapers, adult incontinence pads, sanitary napkins and medical garments (column 1, lines 5 – 20). Gessner teaches that stabilizers are conventionally added to polyolefin polymer and polymer blends since these components almost universally undergo some level of degradation during the extrusion process. The level and kind of stabilizer/antioxidant can affect the degree to which the polymer or blend undergoes degradation (column 6, lines 54 – 63). The stabilizer composition can include at least one composition selected from the group consisting of organic phosphates, organic phosphonites, hindered phenols and hindered amines (column 6, lines 63 – 68).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a stabilizer such as organic phosphates, organic phosphonites, hindered

phenols and hindered amines as suggested by Gessner in the polymer blend of Tsai in view of Mor motivated by the desire to minimize degradation of the polymer during the extrusion process.

***Response to Arguments***

5. Applicant's arguments filed May 11, 2005 have been fully considered but they are not persuasive.

Applicant argues that it would not be obvious to substitute polyolefin for polyester. Mor teaches that the preferred thermoplastic polymer is a polyolefin (column 9, lines 65 – 67) and that the polyolefin is preferably polyethylene or polypropylene (column 10, lines 1 – 5). Mor teaches that in applications such as inner liners for diapers that material such as polyester, as taught in Tsai, is commonly employed. Mor notes that polyester liners wet fairly readily and wick effectively but polyester webs have a coarse feeling. Polypropylene provides a much softer web than polyester but it wets poorly (column 13, lines 45 – 55). Therefore, the modified web of Mor with integrated wetting agent would provide a soft feel and good wetting properties. The Examiner submits that this teaching of Mor provides sufficient motivation to substitute polyolefin for polyester.

Applicant argues that the wetting agent of Tsai does not meet the requirements of claim 1. Tsai teaches that the wetting agent contains $(CH_2)_n$, where n is 4 or greater (column 11, lines 13 – 15). It should be noted that $(CH_2)_n$, represents the hydrophobic hydrocarbon component $R_1$. Applicant requires that the $R_1$ component is a straight or branched chain alkyl of 23 – 40 carbon atoms; it is the position of the Examiner that Tsai's disclosure of n is 4 or greater overlaps and

thus teaches Applicant's limitation. The Examiner agrees that Tsai does not directly disclose that x = 2 – 10 or specifically x = 2 or 3. However, Tsai does discuss HLB which is directly related to the amount of repeating carbons of the hydrophilic portion or Applicant's "x" parameter. By definition, the HLB ratio is the ratio of the weight average molecular weight of the hydrophilic portion divided by the total weight average molecular weight of the material multiplied by 20. Although Tsai teaches that the desired range of HLB is between 10 – 40, Tsai does provide motivation to optimize the HLB (or Applicant's "x" parameter). Tsai teaches that if the HLB is too low, the wetting agent will generally not provide the desired improvement in hydrophilicity. Conversely, if the HLB ratio value is too high, the agent will generally not blend into the polymer blend. In light of Tsai's teaching, one would have been motivated to create a blend with a wetting agent having an optimal amount of ethylene oxide groups (x = 2 – 10 or x = 2 or 3) to create a fiber which exhibits the desired properties while being easily integrated into the polymer blend. It should be noted that UNITHOX 480 and UNITHOX 750 are only *examples* of suitable wetting agents and should not be considered to be limiting. It should be noted that disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. See *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA).

Applicant argues that the HLB of Applicant is not taught by Tsai or Mor. The Examiner submits that although Tsai teaches that the desired range of HLB is between 10 – 40, Tsai does provide motivation to optimize the HLB (or Applicant's "x" parameter). Tsai teaches that if the HLB is too low, the wetting agent will generally not provide the desired improvement in hydrophilicity. Conversely, if the HLB ratio value is too high, the agent will generally not blend into the polymer blend. It should be noted that a reference may be relied upon for all that it

would have reasonably suggested to one having ordinary skill in the art, including nonpreferred embodiments. See *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), 493 U.S. 975 (1989).

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Boyd whose telephone number is 571-272-1473. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer Boyd
July 20, 2005

Ula Ruddock
**Ula C. Ruddock**
Primary Examiner
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